REMARKS

The application has been reviewed and the specification has been amended as requested by the Examiner. In addition, drawing corrections are being submitted for figures 4d, 4e, 5b as well as a new figure 4f to overcome the Examiner's objections and to correct some errors. More particularly The Applicants have discovered that Fig. 4f should have been labeled 4e, and a figure identified as the circuit diagram for a USD has been inadvertently omitted, and is submitted herein. The specification clearly describes the schematic diagrams for three types of devices: a breakover USD (Figs. 4b-e, page 10, last paragraph to page 13 second paragraph, inclusive); a breakunder USD (Figs. 4 h-g, page 13 last paragraph-page 14, first paragraph, inclusive) and a breakunder USD with hysteresis (Fig. 5a-b, page 14, second paragraph-page 16). Moreover, from these descriptions it is clear that omitted Fig. 4f is similar to Fig. 4e with some additions that are clearly described (note in particular the top of page 14 which indicates that in Fig. 4f capacitor C1 and transistor T2 have been added). Furthermore, it is clear from these descriptions that Fig. 5b has been derived by adding additional components to the diagram of Fig. 4f. More specifically, as described on page 15, TRIAC2 and DIAC2 have been added. From these detailed descriptions, it is easy to derive Fig. 4f and accordingly, the figure submitted herewith does not constitute new matter.

The Applicants would like to thank the Examiner for the courtesy extended during the interview of December 6, 2002. As explained at the interview, the present invention pertains to a defibrillator assembly that can be incorporated into a standard patient monitor. The advantage of this arrangement is that it reduces

costs to hospitals, reduce clutter around the patient, since there is no longer a need for a separate defibrillator, and increases the chances of the patient surviving a heart attack since in the later case a nurse or a doctor will not have obtain a separate, free standing defibrillator.

The Examiner has rejected the claims as being anticipated by , or obvious in view of several references. The Applicants respectfully traverse these rejections.

The Rockwell reference discloses an external defibrillator that has an IR input/output port for communicating with an external control device, such as a laptop, PDA, etc. However, Rockwell does not disclose a patient monitor adapted to sense and display a patient's physiological characteristics. Nor is the external control device capable of determining a patient characteristic independently of the defibrillator module since it does not have any sensors for this purpose.

Parker discloses a defibrillator that also communicates with an external computer device such as a laptop, etc. Just like Rockwell, Parker fails to disclose a patient monitor.

Commonly owned patent Lin discloses a self-sufficient external defibrillator. It is not readily integrated into a patient monitor and cannot be used for this purpose without some major modifications.

Sjoquist discloses a self-sufficient external defibrillator as well and also could be readily incorporated into a patient monitor.

Accordingly it is respectfully submitted that the subject application is patentably distinguishable over the prior art and should be allowed.

The Commissioner is authorized to use Deposit Account No. 07-1730 for any fees that may be required including fees for extensions. This is a continuing request.

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Respectfully submitted,

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SPECIFICATION WITH CHANGES INDICATED

On page 8, amend the first full paragraph as follows:

As seen in Fig. 1, associated with monitor 12 there is provided an automatic defibrillator module (ADM) 32. The ADM is connected to its own set of sensors or defibrillator pads 34 via a cable 36. The purpose of providing the ADM 32 as a module rather than a stand-alone unit is so that it can share some of the functions and components of the monitor 12. For this purpose, the ADM 32 is connected to monitor 12 via a data cable 38 which acts as an output member and interfaces the ADM 32 with the monitor 12 as described in more detail below. Power to the ADM 32 can be provided by the power supply via a cable 40, or alternatively, the cable 40 may be connected to a standard line voltage outlet (not shown).

On page 11, amend the second full paragraph:

Fig. 4e is a high voltage, high current, implementation of a "breakover" USD, equivalent to a Shockley diode, using a DIAC and a TRIAC. Note that the overall circuit of Fig. [3] 4e has only two terminals, an anode A' and a cathode K'. The TRIAC will change to a state of low impedance allowing a high current to flow when an appropriate voltage is applied to its gate terminal g. The combination of resistors R1 and R2 form a voltage divider, dividing the voltage V down to a voltage Vb, referenced to the cathode K', at the base of the transistor T1, where Vb=V[R2/(R1+R2)]. The emitter follower configuration of transistor T1 keeps the voltage applied to the DIAC at point X at approximately 0.7 Volts below the voltage Vb.

Page 14 amend the last paragraph as follows:

Fig. 5a shows the circuit symbol for a breakunder USD with hysteresis. Fig. 5b shows an implementation of the device based upon the breakunder device shown in Fig.4f-h. Only the differences will be described. A transistor T2 now forms a second emitter follower supplying a second DIAC, DIAC2. The voltage at point Y is designed to have a value equal to the threshold of DIAC2 when the voltage V across A', K' is equal to an upper threshold Vh. From Fig. 5b it can be seen that, unlike the voltage at point X, the voltage at point Y will instantaneously follow V and will be a proportion of V according to the ratio set by R4 and R5. If the voltage V causes the voltage at Y to exceed the voltage threshold of DIAC2, then a second TRIAC, TRIAC2, will enter a low impedance state. As soon as TRIAC2 enters its low impedance state, the voltage Vb at the base of T1 will reduce to almost zero. Once TRIAC2 has entered a low impedance state T1 cannot supply any current to DIAC1 and therefore the gate of TRIAC1. This "feedback" enhancement of Fig. 4 has introduced a level of hysteresis in to the arrangement. The only way now for TRIAC1 to enter its low impedance state is for the voltage across A', K' to be reduced to zero and then a new voltage applied which has a value between the lower threshold set by R1, R2 and DIAC1 and the upper threshold set by R4, R5 and DIAC2. This device has essentially three modes, two high impedance and one low impedance. If the instantaneous voltage applied to the arrangement is below the lower threshold Vl, then the combination of R1, R2 and T1 means that DIAC1 does not pass current and TRIAC1 remains in it's high impedance state. If the applied voltage is greater than the lower threshold Vl and

less than the upper threshold Vh, then the combination of R4, R5 and T2 means that DIAC2 does not pass current and with DIAC1 now passing current, once the voltage across C1 has had sufficient time to rise, to the gate of TRIAC1, TRIAC1 enters its low impedance state. If, however, the applied voltage is greater than the upper threshold Vh, then the combination of R4, R5 and T2 means that DIAC2 does pass current to the gate of TRIAC2 thereby inhibiting DIAC1 and keeping TRIAC1 in its high impedance state.

CLAIMS WITH CORRECTIONS INDICATED

1 (Amended). A composite monitoring system comprising:

a patient monitor including a sensor arranged to sense a physiological characteristic of a patient and a signal processor coupled to said sensor and adapted to process the signal from said sensor and an output member; and

a defibrillator module adapted to be selectively coupled to said patient monitor, said defibrillator module including a pulse generator responsive to commands to generate therapeutic pulses for the patient, and a data generator arranged to generate indication signals indicative of an operation of said defibrillator module;

said patient monitor and said defibrillator module cooperating when coupled to transfer said indication signal to said output member [whereby] <u>wherein</u> said output member generates output signals corresponding to one of said patient characteristic and said indication signals[.];

<u>wherein said patient monitor is operational without said defibrillator module</u>.

Insert the following new claims:

22 (New). The composite system of claim 1 wherein said defibrillator module is adapted to operate in one of an automatic, semiautomatic and manual modes.

23 (New). A composite monitoring system comprising:

a patient monitor disposed in a monitor housing and including a sensor arranged to sense a physiological characteristic of a patient and a signal processor

coupled to said sensor and adapted to process the signal from said sensor and an output member; and

a defibrillator module disposed in a defibrillator housing and adapted to be selectively coupled to said patient monitor, said defibrillator module including a pulse generator responsive to commands to generate therapeutic pulses for the patient, and a data generator arranged to generate indication signals indicative of an operation of said defibrillator module;

said patient monitor and said defibrillator module cooperating when coupled to transfer said indication signal to said output member wherein said output member generates output signals corresponding to one of said patient characteristic and said indication signals.

9 (Amended). A defibrillator module <u>adapted to be incorporated into a separate patient monitor display</u> comprising:

a physiological sensor to sense the intrinsic cardiac activity of a patient and to generate a sensor signal indicative of said intrinsic cardiac activity;

a controller arranged to receive said sensor signal and to generate corresponding commands;

a pulse generator arranged to generate therapeutic pulses for the patient in response to said commands;

an output member associated with said controller and adapted to generate output signals indicative of an operation of the defibrillator, said output signals being selected for transmittal to [an] <u>said</u> external patient monitor for display[.]<u>;</u>

wherein said physiological sensor, controller, pulse generator and output member are packaged to be integrated into said patient monitoring unit.

11 (Amended). The module of claim 10 wherein said output member is adapted to receive a physiological parameter detected by said external patient monitor, and wherein said arrhythmia detector is adapted to receive said physiological [monitor] parameter and to make a determination for delivering therapy to the patient based on said physiological parameter.

18 (Amended). A defibrillator [module] assembly comprising:

a patient monitor adapted to sense and display a physiological parameter and having a monitor housing; and

a defibrillator module arranged to fit within said monitor housing and including:

a controller arranged to receive a sensor signal indicative of the intrinsic cardiac activity of a patient and to generate corresponding commands;

a pulse generator arranged to generate therapeutic pulses for the patient in response to said commands;

an output member associated with said controller and adapted to generate output signals indicative of an operation of the defibrillator, said output signals being selected for transmittal to [an external] said patient monitor for display.

New claims:

24 (New). The defibrillator assembly of claim 16 wherein said defibrillator is adapted in one of several operational mode, including a pacing mode for applying pacing to the patient.

25 (New). A method of providing patient treatment comprising:

providing a patient monitor adjacent to a patient, said patient monitor being adapted to measure a patient characteristic;

providing a defibrillator adapted to selectively provide shock therapy to the patient, said patient monitor and said defibrillator being adapted to operate independently of each other; and

associating said defibrillator and said patient monitor to allow said defibrillator and said patient monitor to receive data to or from each other.

26 (New). A method of combining a patient monitoring network and an external defibrillator comprising:

providing a patient monitoring network;

providing an external defibrillator, wherein said patient monitoring network is operational independently of said external defibrillator and said external defibrillator is operational independently of said external defibrillator; and

coupling said patient monitoring network and said external defibrillator to couple to each other for exchanging information.